Claims

Sub Sail

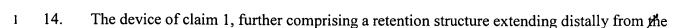
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- A medical device for assisting in the drainage of fluid from a body cavity comprising: an elongated member comprising a distal end and a proximal end and defining a first
- lumen extending therebetween; and
- a valve disposed at the proximal end of the elongated member, the valve comprising:
- a tube defining a second lumen in fluid connection with the first lumen, the tube
- 6 comprising a first end connected to the proximal end of the elongated member, and a socket;
 - a shaft at least partially disposed in the socket; and
 - a stopper connected to the shaft that occludes the second lumen when exposed to
- 9 retrograde pressure.
 - 2. The device of claim 1, wherein the shaft is fixed in the socket.
- 1 3. The device of claim 2, wherein the stopper comprises a deformable film.
- 1 4. The device of claim 1, wherein the shaft is axially translatable in the socket.
- 1 5. The device of claim 4, wherein the shaft is tapered inwardly toward the stopper and the
- 2 socket is tapered inwardly toward the stopper, both preventing complete removal of the shaft
- 3 from the socket.
- 1 6. The device of claim 4, wherein the yalve further comprises a spring disposed in the
- 2 socket that is biased to open the valve in the absence of a retrograde pressure.
- 7. The device of claim 1, wherein the tube further defines at least one additional lumen in
- 2 fluid connection with the first lumen, wherein the second lumen and the additional lumen are
- 3 disposed about the periphery of the socket.
- 1 8. The device of claim 1 wherein the stopper comprises a substantially circular surface and
- 2 the shaft is attached to the stopper at the center of the circular surface.
- 1 9. The device of claim 1, wherein the stopper further comprises a lip disposed about the
- 2 periphery of a distal surface of the stopper.
- 1 10. The device of claim 1, wherein the stopper comprises a substantially hemispherical
- 2 surface and the shaft is attached to the stopper at the center of the hemispherical surface.
- 1 11. The device of claim 1, wherein the stopper comprises a substantially wedge-shaped
- 2 section.
- 1 12. The device of claim 1, wherein the device is a stent.
- 1 13. The device of claim 1, wherein the device is a ureteral stent.

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- 2 distal end of the elongated member.
- 1 15. The device of claim 14, wherein the retention structure further defines a passageway
- 2 extending between an opening and the first lumen.
- 1 16. The device of claim 1, further comprising a retention structure extending from the
- 2 stopper.
- 1 17. The device of claim 16, wherein the retention structure is a lip disposed about a periphery
- of the stopper having a perimeter wider than the proximal end of the elongated member.
- 1 18. A valve for preventing reflux of fluids in a medical device comprising:
- a tube defining a lumen having a first end and a second end, and a socket;
 - a shaft at least partially disposed in the socket; and
 - a stopper attached to the shaft that occludes the lumen when exposed to retrograde
- 5 pressure.
- 1 19. The device of claim 18, wherein the shaft is fixed in the socket.
- 1 20. The device of claim 19, wherein the stopper comprises a deformable film.
- 1 21. The device of claim 18, wherein the shaft is axially translatable in the socket.
- 1 22. The device of claim 21, wherein the shaft is tapered inwardly toward the stopper and the
- 2 socket is tapered inwardly toward the stopper, both preventing complete removal of the shaft
- 3 from the socket.
- 1 23. The device of claim 18, wherein the valve further comprises a spring disposed in the
- socket that is biased to open the valve in the absence of retrograde pressure.
- 1 24. The device of claim 18, wherein the tube further defines at least one additional lumen,
- wherein the first lumen and the additional lumen are disposed about the periphery of the socket.
- 1 25. The device of claim 18, wherein the stopper comprises a substantially circular surface
- 2 and the shaft is attached to the stopper at the center of the circular surface.
- 1 26. The device of claim 18, wherein the stopper further comprises a lip disposed about the
- 2 periphery of a distal surface of the stopper.
- 1 27. The device of claim 18, wherein the stopper comprises a substantially hemispherical
- 2 surface and the shaft is attached to the stopper at the center of the hemispherical surface.
- 1 28. The device of claim 18, wherein the stopper comprises a substantially wedge-shaped
- 2 section.

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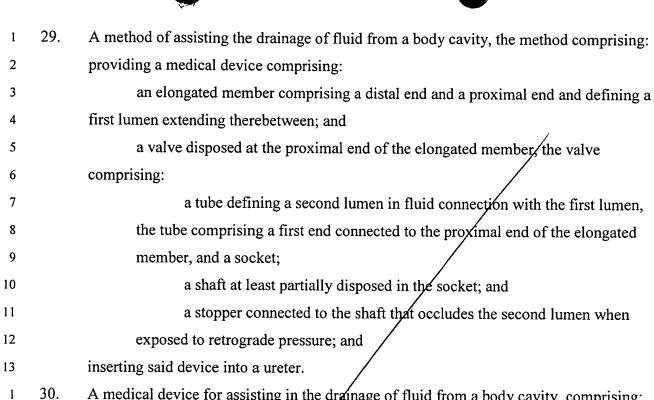
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- 30. A medical device for assisting in the drainage of fluid from a body cavity, comprising: an elongated member comprising a distal end and a proximal end and defining a first lumen extending therebetween;
 - a seat defined by the elongated member;
 - a shoulder defined by the elongated member proximal to the seat; and
- a ball disposed in the elongated member between the seat and the shoulder that occludes the first lumen when exposed to retrograde pressure.
- 1 31. The device of claim 30, wherein the elongated member defines at least one slot between
- 2 the seat and the shoulder.
- 1 32. The device of claim 30, further comprising a retention structure defining a second lumen
- 2 in fluid connection with the first lumen.
- 1 33. The device of claim 32, wherein the shoulder is defined by an interface between the
- 2 elongated member and the retention structure.
- 1 34. The device of claim 32, wherein the retention structure has a pigtail shape.
- 1 35. The device of claim 30, comprising a retention structure extending from the distal end of
- 2 the elongated member.
- 1 36. The device of claim 35, wherein the retention structure further defines a passageway
- 2 extending between an opening and the first lumen.

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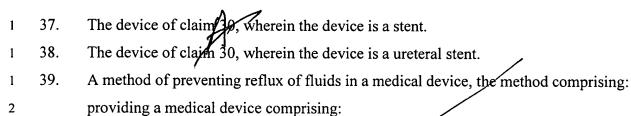
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an elongated member comprising a distal end and a proximal end and defining a first lumen extending therebetween,

a seat defined by the elongated member,

a shoulder defined by the clongated member proximal to the seat, and

a ball disposed in the clongated member between the seat and the shoulder that occludes the first lumen when exposed to retrograde pressure; and inserting said device into a ureter.